The Role of Imaging in the Detection and Management of COVID-19: A Review

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Abstract

Coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is spreading rapidly around the world, resulting in a massive death toll. Lung infection or pneumonia is the common complication of COVID-19, and imaging techniques, especially computed tomography (CT), have played an important role in diagnosis and treatment assessment of the disease. Herein, we review the imaging characteristics and computing models that have been applied for the management of COVID-19. CT, positron emission tomography - CT (PET/CT), lung ultrasound, and magnetic resonance imaging (MRI) have been used for detection, treatment, and follow-up. The quantitative analysis of imaging data using artificial intelligence (AI) is also explored. Our findings indicate that typical imaging characteristics and their changes can play crucial roles in the detection and management of COVID-19. In addition, AI or other quantitative image analysis methods are urgently needed to maximize the value of imaging in the management of COVID-19.